After Sales Technical Documentation

FIXED HANDSFREE CAR KIT (CARK30) INSTALLATION GUIDE

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FIXED HANDSFREE CAR KIT INSTALLATION GUIDE

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Introduction

This installation guide has been prepared to provide the basic information necessary to install the CARK30 car kit. The guide is not intended to be definitive, because different types and models of vehicle will require different installation work. The information given is for general guidance only, and is for use by suitably qualified personnel.

NOTE: Refer to the Warnings below before commencing the installation procedure.

WARNINGS

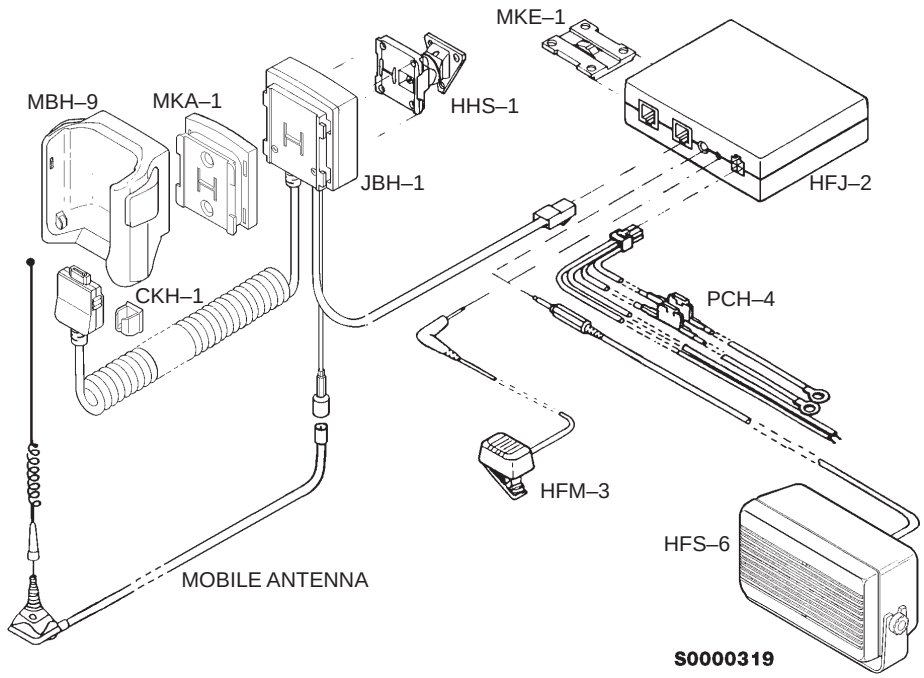
1. **ENSURE THE VEHICLE BATTERY IS DISCONNECTED BEFORE COMMENCEMENT OF THE INSTALLATION PROCEDURE, AND THAT IT REMAINS DISCONNECTED DURING THE PROCEDURE.**
2. **DO NOT SMOKE OR USE NAKED FLAMES WHEN WORKING NEAR THE VEHICLE FUEL SYSTEM.**
3. **ENSURE THAT ELECTRICAL CABLES, HYDRAULIC LINES AND FUEL LINES ARE NOT DAMAGED DURING INSTALLATION.**
4. **CHECK THAT NORMAL CONTROL AND OPERATION OF THE VEHICLE IS NOT IMPAIRED BY THE INSTALLATION; IN PARTICULAR CHECK THE BRAKES AND STEERING THOROUGHLY.**
5. **ALTHOUGH ELECTRONIC SPEED CONTROL, ABS ANTI–LOCK BRAKE AND FUEL INJECTION SYSTEMS ARE RELATIVELY IMMUNE TO MALFUNCTION CAUSED BY NEARBY RADIO TRANSMISSIONS, SHOULD YOU EXPERIENCE FALSE OPERATION OF THESE SYSTEMS OR ARE IN ANY DOUBT WHATSOEVER AS TO THEIR FUNCTIONALITY, PLEASE CONSULT THE VEHICLE DEALER.**
6. **THE CARK30 KIT IS SUITABLE FOR USE ONLY IN VEHICLES WITH A 12V NEGATIVE EARTH SUPPLY. USE ON OTHER SUPPLY VOLTAGES OR ALTERNATIVE POLARITY WILL DAMAGE THE EQUIPMENT.**

Unpacking

Carefully unpack the equipment and ensure that the following items are present.

Item	Ref. Code	Other Items
In–car Holder	MBH–9	
Cable Junction Box	JBH–1	
Handsfree Junction Box	HFJ–2	
Mounting Plate	MKE–1	12 fixing screws
Swivel Mount	HHS–1	6 fixing screws
Handsfree Microphone	HFM–3	1 flat mounting plate
Handsfree Speaker	HFS–6	2 fixing screws & nut plates
Power Cable	PCH–4	2 fused connectors and wire ends
Cable Clip	CKH–1	
Options		
Modular 8–pin Extension Cable	SCE–4	

Figure 1: Connection Schematic



The CARK30 kit allows handsfree operation of the phone in a vehicle; it also fast–charges the phone battery. The kit requires an additional external antenna. No additional handset is required.

CARK30 Component Parts

Cable Junction Box (JBH–1) / In–car Holder (MBH–9)

This combination enables the phone to operate in handsfree mode. The coil cord, from the cable junction box (JBH–1), plugs into the bottom of the phone; the phone is then placed into the holder (MBH–9) which should be mounted in a convenient dashboard location. When the phone is located in the MBH–9 holder, it will operate in handsfree mode automatically. On removing the phone from the holder, it reverts to normal handset operation.

Mounting Plate and Swivel Mount (MKE–1 and HHS–1)

The mounting plate (MKE–1) and swivel mount (HHS–1) mounting brackets are interchangeable. Either one can be used to mount both the JBH–1 or the HFJ–2. The MKE–1 is a fixed position mount; HHS–1 is a swivel mount which allows for adjustable mounting angles.

Cable Clip (CKH–1)

The cable clip (CKH–1) enables the coil cord from JBH–1 to be secured when it is not connected to the phone.

HF Junction Box (HFJ–2)

The handsfree junction box (HFJ–2) provides and controls the supply voltages for the accessories and the charge current for the phone. In addition, it controls the audio paths to accessories and handsfree equipment. The jack marked HANDSET/ACCESSORY is reserved for optional accessories.

Power Cable (PCH–4)

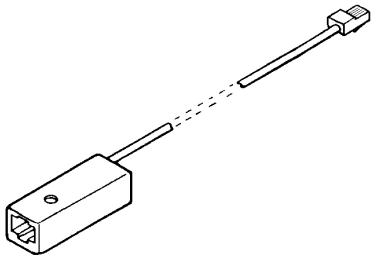
The power cable connects to the handsfree junction box (HFJ–2) via the 4 pin connector. The red (+12V) and black (GND) wires must be connected directly to the vehicle battery terminals via the supplied fused connectors. The yellow (XCRM) wire is for car radio mute function and the blue (IGNS) wire is for the ignition sense function. The XCRM line goes down to 0V during a call. The maximum sink current is 250mA, (see CAR RADIO MUTING). The IGNS line is connected to a +12V voltage source, controlled by the car ignition key. The ignition sense can utilize voltages up to 24V, (see IGNITION SENSE).

Handsfree Microphone and Speaker (HFM–3 and HFS–6)

The handsfree microphone can usually be installed on the driver's sunvisor or the vehicle's A–pillar. The main idea is to get the microphone as close to the driver's mouth as possible, and to attach the microphone to a surface that is mechanically quiet. The microphone connects to the HFJ–2 MIC jack. The loudspeaker should be mounted at least 3 ft (1 m) away from the handsfree microphone to avoid acoustic feedback. The loudspeaker connects to the HFJ–2 SPEAKER jack.

Modular 8 Pin Extension Cable (SCE–4)

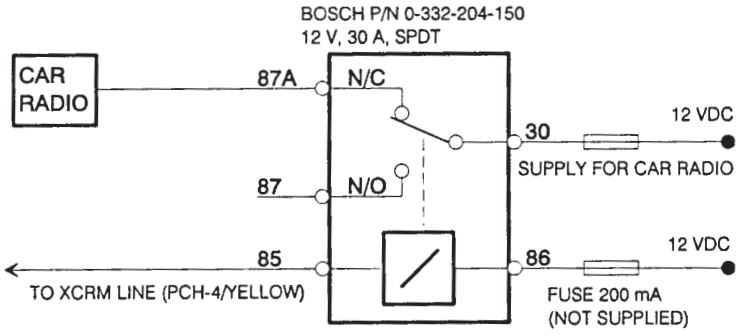
This cable provides an extension between the HFJ–2 and JBH–1.



Car Radio Muting (XCRM)

The phone offers a feature that can mute the car radio automatically during a conversation. When in standby, the yellow wire's potential is +12V, but during a call it drops down to 0V. The maximum load that this line can handle is 250mA. Note that an auxiliary relay or muting unit must be used when the radio does not have a mute feature available.

When a relay is used, it is connected in series with the car radio main



supply. A 200mA fuse should be used to protect the XCRM output in the event of a short circuit. Some radios have separate supplies for amplifiers

and motors, and another for memory backup purposes. Very often these radios also have a secret code system, which activates itself if a break in the memory supply is detected.

Be careful when installing the relay not to interrupt the memory supply (usually marked ACC or +MEM), but to install the relay in the main supply feed.

One option is to use a special muting unit (SR59), which mutes the radio by connecting load resistors to the speaker lines of the car radio. Four loudspeakers can be muted and the maximum permitted power is 20 watts per channel. The muting unit can also be used as a relay to cut the main supply feed of the car radio.

Ignition Sense (IGNS)

The ignition sense feature prevents the transceiver from draining the car battery by executing an auto power–off 5 seconds after the ignition key has been turned off. The blue wire of the power cable is used for the ignition sense feature. The use of IGNITION SENSE is recommended to prevent accidental draining of the vehicle's battery. The wire is connected via a 200mA fuse to a 12/24V potential that is controlled by the ignition key. Do not connect it directly to the high voltage sections of the ignition circuit.

Mechanical Installation

WARNING

ENSURE THAT THE POSITIONS SELECTED FOR INSTALLATION WILL NOT RESULT IN HOLES BEING DRILLED THROUGH FUEL LINES, BRAKE LINES, CABLES ETC.

Handsfree Junction Box

Select a suitable position in the front of the vehicle which:

- allows the Handsfree Junction Box to be fixed securely to the vehicle structure
- avoids all cables, pipes, and fluid reservoirs
- will cause no hazard to vehicle occupants in the event of an accident
- will not interfere with vehicle controls or vision
- allows adequate air flow for cooling (not to be positioned in the heater air flow)

A position under the dashboard is recommended.

Using the MKE–1 mounting bracket as a template, mark and drill four holes and secure the bracket using the four self–tapping screws. Locate the Handsfree Junction Box by positioning it next to the bracket and sliding it sideways until it locks firmly into position.

Antenna

NOTE: The CARK30 kit is designed to operate with a high quality external antenna. However, due to many different types of antenna available an antenna is NOT included as part of this kit. It is the responsibility of the dealer to advise on the most suitable type for a given installation.

The ideal location for the antenna is in the centre of the roof or boot lid. This position provides the best transmission and reception radiation pattern. Before drilling a hole, make sure that there is an acceptable route for the cable to the Handsfree Junction Box. After drilling the hole for the antenna, remember to clean the area to ensure a proper and reliable connection between the antenna and ground. After cleaning the area, apply some rust–proofing compound to prevent future oxidisation. If the boot lid acts as an antenna for the vehicle radio, do not mount the telephone antenna on the boot lid.

To avoid drilling a hole in the vehicle's bodywork, a glass–mounted antenna can be chosen and located on the rear window of the vehicle.

NOTES: The connection between the Handsfree Junction Box and the antenna must be via a non–radiating cable (eg. coax). Try to ensure the cable run is kept as short as possible to maximise antenna performance.

The antenna shall be mounted in a position such that no part of the human body will normally rest within 8" (20cm) of any part of the antenna for more than a few minutes while the equipment is switched on, unless there is an intervening metallic screen (eg. a metallic roof) at least 3.25 sq ft (0.3 sq m) in area.

Location of 'Handsfree' Equipment

'Handsfree' equipment covers the Cable Junction Box; the In–car Holder; the HF Microphone; and the HF Speaker.

The location of the Cable Junction Box / In–car Holder should be chosen to provide the most comfortable position for handsfree use and so that visibility of the phone's display is good in all lighting conditions.

The HF Microphone should be located quite close to the driver's mouth and attached to a surface that does not carry the mechanical vibrations of the vehicle body, since these have a tendency to increase background noise when the phone is operating in handsfree – recommended positions include the driver's sunvisor or the vehicle's A–pillar. The position of the HF Speaker is not so critical but two requirements should be considered as follows: the driver should be able to hear any conversation without special effort; and in order to minimize acoustic feedback the speaker and the microphone should not be positioned facing each other and located at least 0.5m apart.

Electrical Installation

This equipment operates on a 12V dc (negative ground). If the vehicle has a 24V electrical system, a 24V/12V 4A converter must be used. If there are two 12V batteries connected in series, DO NOT use only one of the batteries. The red (+12V) and black (GND) wires must be connected directly to the vehicle battery terminals via the supplied fused connectors.

WARNING

THIS EQUIPMENT IS NOT SUITABLE FOR USE ON A VEHICLE WITH A POSITIVE GROUND SYSTEM.

The cable connections for the kit are shown in the connection schematic on page 6 of this guide. Individual equipment connections are described briefly under the equipment headings following the schematic.

Testing

Once installed, the equipment should be tested to ensure that it is operating satisfactorily and that the position of the units does not impair on the driver's ability to control and operate the vehicle in any way.

Use the phone to make a call when the vehicle is parked with the engine running. During the call, switch off the engine. Ensure that the phone is operational with the engine on and off. For operating information refer to the 'User Guide' supplied with the phone.

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